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ABSTRACT

In this practicum, 10 children (ages 6 and 7) with hearing impairments or language delays participated in a 12-week program designed to involve students in the total process of goal setting and achievement, including deciding on necessary materials, designing and following a plan to reach the goal, and producing a product. Parents became involved to observe and to carry the learning over into the home environment. Strategies included making pictorial flow chart plans and following them, conducting hands-on activities, and having students view videotapes of themselves at work. The results of pretesting and posttesting indicated that all 10 students made improvements in their ability to think of materials needed for age-appropriate activities. It was concluded that the strategies increased the critical thinking skills of the students. Appendices contain teacher-made test items (including a checklist for pretesting and posttesting and a performance test), a parent questionnaire, and a letter to parents. (Contains 32 references.) (Author/DB)

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DEVELOPING CRITICAL THINKING SKILLS IN YOUNG HEARING-IMPAIRED STUDENTS, USING REALIA, PRACTICE SESSIONS, AND PARENT INVOLVEMENT

by

Joyce B. Lins

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A Practicum Report

Submitted to the Faculty of the Center for the Advancement of Education of Nova University in partial fulfillment of the requirements for the degree of Master of Science.

The abstract of this report may be placed in a National Database System for reference.

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Abstract

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Descriptors: Critical Thinking Skills/ Thinking Skills/ Problem Solving/ Reasoning/ Hearing Impairment/ Hearing Loss/ Deafness/ Language Delayed/ Language Handicaps/ Special Education/ Primary Education/ Early Childhood Education/ Parent Involvement/ Realia

Six and seven-year-old, hearing-impaired, language-delayed children have difficulty using critical thinking skills to decide what materials are needed to perform specific, developmentally appropriate activities. To address the problem, the target group of ten students participated in a twelve-week program designed to involve students in the total process of goal setting, deciding on necessary materials, designing, and following a plan to reach the goal and produce a product. Parents were involved as observers and to carry the learning over into the home environment by encouraging their children to think for themselves and perform tasks independently at home. Strategies included making pictorial flow chart plans and following them, hands-on activities, viewing video tapes of themselves at work, and parent involvement. The results of pre and post testing indicated all ten students made improvement in their ability to think of materials needed for age appropriate activities. It was concluded that the strategies employed increased the critical thinking skills of the target group. The program will be shared through presentations at workshops, conferences, professional organizations, and will be submitted to professional journals. Appendices contain teacher-made test items including a checklist for pre and post testing, a performance test, a parent questionnaire, a letter to parents, and a photo record.

Authorship Statement

I hereby testify that this paper and the work it reports are entirely my own. When it has been necessary to draw from the work of others, published or unpublished, I have acknowledged such work in accordance with accepted scholarly and editorial practice. I give this testimony freely, out of respect for the scholarship of other professionals in the field and in the hope that my own work, presented here, will earn similar respect.

Joyce B. Sims
student's signature

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October 22, 1993
date

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CHAPTER I

Purpose

School and Community Setting

The setting for the proposal is a small, fifty-six-year-old, inner city elementary school. The city's historic preservation board has recognized the unique school building as a landmark. The staff is dedicated and closely knit. There is little turnover.

The student population is 350, consisting of 222 White, 108 Black, and 20 Hispanic children. Fifty-two percent of the students attending the school receive free lunch. Thirty-six percent of the students were bused to the school. Students bused included 48 special education students, 60 Black students, and 18 from the county facility that housed elementary children who were removed from their homes through court action. Considering how many families lived outside the school neighborhood, there was a very active P.T.A.

The State school report for 1991-1992 provided the following statistics for the school. The student attendance rate was 93 percent, meaning the average number of students who attended school each day. The

percentage of students who enrolled at the beginning of the school year and left before the end was 17 percent, compared to the State's 14.9 percent. The ratio of students to computers was 7:1, an indication of the school's readiness to use technology for instruction. The ratio for the State was 15:1.

The 48 special education students transported to the school were hearing-impaired and were bused from all over the county. It was not unusual for the students to spend at least two hours of the day riding on a bus. The county program for hearing-impaired youngsters from preschool to fifth grade was housed at the school for fifteen years. There were five self-contained classrooms for the hearing-impaired; 1) three-year-olds, 2) four-year-olds, 3) Kindergarten and first grade, 4) second and third grades, and 5) fourth and fifth grades. The teacher-pupil ratio ranged from 1:6 to 1:10. The special education teachers conducting the classes were required to be certified in deaf education by the State Department of Education. In addition to the self-contained classes, hearing-impaired students declared able were mainstreamed into the standard classrooms, one reason for maintaining the hearing-impaired program at an elementary school.

The writer of the practicum is a special education teacher of the hearing-impaired, and teaches the self contained kindergarteners and first graders. The writer received a bachelor's degree in elementary education and gained four years' experience teaching at various grade levels (third, fourth, and fifth) before specializing in deaf education. The writer is in the twenty-seventh year of teaching and is certified by the State Department of Education to teach elementary education and hearing habilitation. Twenty years ago, the writer was a charter member of the first organization for teachers of the hearing-impaired in the state.

As classroom teacher, the writer was responsible for monitoring each child's hearing aids daily, teaching all academic subjects at appropriate levels, and helping the students to develop language, auditory, and speech skills. The students were seen by the speech and language clinician every day, mainstreamed for physical education daily, and attended art and music classes once a week. The writer was responsible for the majority of the students' school day.

Hearing losses of the students ranged from moderate, severe, to profound. Those with severe and profound losses cannot hear people speaking until they

put on their hearing aids. Even then they do not hear with the clarity of a normal hearing person. Hearing aids can only amplify sounds. To date, technology has not been able to improve hearing in the way that eye glasses can restore 20/20 vision. The result is that it takes long and intensive training for the students to learn to talk. The children are delayed in the ability to understand and use language, and often the delay is as much as three years below where it should be for their age, as measured by the Learning Accomplishment Profile Diagnostic Test (LAP) (1977) scores for language comprehension and expression.

The philosophy of the auditory-oral program for hearing-impaired students does not include sign language. The goal is for the students to learn to speak. It is most important that students are fitted with hearing aids as early as possible, ideally before they are a year old, and that they receive therapy. With properly fitted aids and training, hearing-impaired students can learn to use the hearing that remains, called residual hearing, to learn to listen and speak and get along in the mainstream of life. The teachers in the program are dedicated to the belief all hearing-impaired children should be given the opportunity to

learn to hear and talk. Only a very small percentage of the deaf are not helped by hearing aids. That may soon change because hearing aid technology is improving every day, and more cochlear implants are being done.

The setting for the proposal was unique by being one of few auditory-oral programs for hearing-impaired students in a public school setting in the state. The program is listed in a national directory published in The Volta Review (1992) by the Alexander Graham Bell Association. It is not uncommon for parents to move from other counties, and other states, to enroll a hearing-impaired child in the program. Furthermore, three families have moved from other countries to enroll a hearing-impaired child in the auditory-oral program at the site where the practicum was conducted.

The Problem

With the rapid changes in our world, it is not possible to teach students all the information needed to function successfully in the future. Teachers must help young students begin to develop critical thinking skills needed throughout their lives. Five, six and seven-year-old, language-delayed, hearing-impaired students have difficulty using critical thinking skills to decide what materials are needed to perform specific,

developmentally appropriate activities. For example, when asked what materials are necessary to draw a picture, the student should be able to name two or three acceptable items, such as 1) paper, 2) pencil, or 3) crayons. Students should have the cognitive language ability to name things needed for an activity by age five-and-a-half, as measured by the Learning Accomplishment Profile Diagnostic Test (LAP). Discussions with peer educators of young hearing-impaired students revealed the problem of critical thinking skill development to be common and solutions would be welcomed.

The students in the care of the writer could not tell the teacher two materials needed to draw a picture. When the LAP was administered, nine out of ten children did not pass item LN21 in the language section labeled Cognitive: Naming, which required the student to tell three things needed for each of three defined activities. The purpose of the practicum was to research, design, and implement a plan to improve the ability of six and seven-year-old, language delayed, hearing-impaired children to use critical thinking skills to determine materials needed to perform specified activities, by 70 percent. The target group

was a special education class of ten hearing-impaired students, six and seven years old .

Causes of the problem

There is no single cause for the students being unable to tell what materials are needed to complete a given task. The inability could be due to the limited vocabulary as a result of hearing loss. Another factor could be the students' lack of experience in applying critical thinking skills. It has been observed, during the author's 27 years of experience in working with hearing-impaired students and the parents, that well-meaning parents tend to do too much for the children. Often parents tend to lower the expectations for a handicapped child. The children are not given the opportunity to think and do things for themselves.

To master a skill, a student must have the opportunity to learn and practice the skill. If students are to develop the ability to do critical thinking and problem solving, direct instruction is essential. Teachers should provide students with many experiences and activities requiring critical thinking. The earlier the skills are encouraged in students the better, including the handicapped.

Therefore, the problem the practicum addressed was teaching young language-delayed, hearing-impaired students to use critical thinking skills in determining materials required to carry out specified activities and accomplish a set goal. After discussing the problem with other teachers of hearing-impaired students, the inability to demonstrate use of critical thinking skills was found to be a common problem for eighty to ninety percent of the students. The teachers were concerned about the number of children unable to think for themselves, and were interested in finding methods to promote thinking skills.

A goal of the auditory-oral program is for hearing-impaired students to acquire the skills necessary to be fully mainstreamed into a standard classroom at some point in their school career. Being able to use critical thinking and problem solving skills independently is a vital element for successful mainstreaming. The teachers interviewed expressed further concern that most of the hearing-impaired students are unprepared to make the transition from elementary school to middle school. Students who have learned to use critical thinking and problem solving skills will be better equipped to meet new challenges.

The writer of the practicum has taught hearing-impaired children in the local area for twenty-three years. Having kept in contact with former students throughout their school years and into adulthood, the writer has made some observations. One common factor observed to promote success in the lives of individual students was parental support. The parents encouraged independence and allowed their children to think for themselves.

To determine if class time spent to teach students to use a thinking strategy was worthwhile, researchers J. Brown and L. Brown (1987) examined experiments conducted independently by Gormley (1982), Kelly and Tomlinson-Keasey (1976), and Tomblin (1977) to teach hearing-impaired students to use a thinking strategy. In all three experiments, there was measurable improvement in the students' learning following direct instruction in a thinking strategy. The lack of direct teaching of thinking skills may be one reason students in the target group were weak in the use of critical thinking ability. Students should benefit from instruction in using critical thinking skills.

Language delay due to hearing loss is another factor to consider as a cause for students being unable

to name items essential for an activity. Young hearing-impaired students may lack the vocabulary to express an answer to the question, or may not comprehend the question. Language is built on and grows from real-life experiences, and the hearing-impaired student may not have had the experience to draw upon to name items needed to do a certain task. The teacher of young hearing-impaired children spends most of the day helping students learn language and vocabulary often taken for granted when teaching normal-hearing children.

To grow in comprehension and ability to use language, hearing-impaired children must have real-life experiences to build on. The teacher of young hearing-impaired students must create real experiences in the classroom everyday to stimulate langauge and vocabulary growth. The teacher spends the greatest part of the day setting up situations and using realia to introduce language concepts and vocabulary, and encouraging students to use language. The teacher cannot assume students have developmentally appropriate language skills. Because of the hearing impairment the children are also language impaired.

Learning abilities of the handicapped should be strengthened in every way possible to provide the

student with tools for future life-long learning. If hearing-impaired students do not learn to use critical thinking abilities, how will they deal effectively with problems encountered in school and throughout life? By encouraging thinking skills in hearing-impaired students at a young age, they will be better equipped to face future challenges.

Outcome Objectives

Nine out of ten students in the target group were unable to think of items needed to accomplish a specific task. Two possible contributing factors for the problem have been considered. The first element was language delay caused by hearing loss, and the second was low parent expectations because of a handicap. According to the LAP, students should be able to think of three items needed for age appropriate activities at a developmental language age of five years six months.

The practicum was designed to teach six and seven-year-old students thinking skills useful throughout life. The students should be actively involved with hands-on activities. The writer's method involved students from beginning to end in the whole process of deciding on a goal, problem solving to think of materials required, designing and following a plan to

reach the goal.

To achieve the practicum goal, three outcome objectives were evaluated. The first objective required students to think of materials necessary to do an activity. The second objective involved the student in the total process of goal setting, deciding on materials, planning, and coming up with the finished product. The third objective was a carryover of the second and directly involved the parents in observing how well the children were able to think for themselves and perform tasks independently in the home environment.

During the 12-week implementation period, strategies included teacher modeling, a variety of highly motivating hands-on experiences, daily opportunities to practice, plus homework. The target group of six and seven-year-old hearing-impaired students learned to use critical thinking skills to make decisions on goals to achieve, to consider essential materials, draw a plan, execute the plan, and create the product.

Objective 1: Over a period of three months, nine of the ten targeted students will be able to determine three materials needed to perform ten specific activities. The criteria for success will be 70 percent

accuracy as measured by teacher-made checklist.

Objective 2: Within the designated twelve-week period, nine out of ten students will use decision-making and planning skills to select one of ten given products as a goal, tell materials needed, construct and follow a flow chart plan, and create a product, with 70 percent accuracy as measured by teacher observation and teacher-made assessment of student performance.

Objective 3: With the cooperation of the parents, at the end of each week during the implementation plan, all students will take the student-made plan for the activity-of-the-week home and demonstrate to the parent the ability to use critical thinking. The student will request three materials needed to do the activity, follow the plan, and create the product. The parent will verify progress made in a weekly, teacher-made questionnaire.

If the target group of six and seven-year-old students accomplish the three outcome objectives, they would gain the ability to use critical thinking skills to set a goal, name items needed to achieve the goal, design and follow a flow chart plan to create a product. Improved attitudinal outcomes should evolve as a result of successful implementation. Parents were encouraged

to be observers and supporters of the student's critical thinking abilities. Students should gain the self-esteem and self-confidence that comes from consistently being able to think and do for oneself.

CHAPTER II

Research and Solution Strategy

Research

Most of the literature researched on teaching and testing critical thinking skills dealt with middle school, high school, and college students. There have been many books and articles written on the subject for older students. The writings ranged from short term unit plans by Flack (1991) to the three year program called Instrumental Enrichment by Feuerstein (1980).

One plan of developing critical thinking skills in students was outlined by Flack (1991), a Professor of Education at the University of Colorado. A unit of study was explained that used mystery literature. The adventures of Sherlock Holmes, the Hardy Boys, and Nancy Drew were highly motivating for the students. The detectives were great role models for the students to learn how problems were solved.

To begin the unit and motivate the students to use reasoning skills, a mystery was read aloud. While listening, students were asked to keep journals in the same way a detective would take notes. The teacher stopped reading the story at a critical point. Using

their notes, the students worked cooperatively, or independently to solve the mystery.

Once students had practice in thinking like detectives, the teacher led the students to analyze the design of a mystery story and the characteristics of detectives they read about. Finally, they wrote mysteries and applied the critical thinking skills learned. Another outcome of this unit was observed by the teacher. Students who had been reluctant readers had become avid readers of Sherlock Holmes' adventures.

Flack (1981) did not give age levels or grade levels for this unit. Included with the article was a photo of the teacher working with pre-adolescent or adolescent students. Mystery and detective stories would appeal to students at this age level.

There were plans to apply critical thinking skills to reading and to the obvious subjects of science and mathematics. Some plans designed to develop language in young children also promoted critical thinking skills. There were programs set up to develop abstract thinking skills and then bridge them to any subject. There have been a multitude of writings on critical thinking, but it was difficult to find existent research on developing critical thinking skills with young children.

A timely article by Hoffman (1992) grew out of a desire to nurture critical thinking skills in the author's own child. Hoffman (1992) is Professor of Language and Literacy Studies at the University of Texas. It began with the study of Christopher Columbus in the child's classroom. The child was upset about negative events attributed to Columbus.

Hoffman's (1992) plan involved an instructional procedure that used Inquiry Charts (I-Charts). The plan was built on the works of McKenzie (1979) and Ogle (1986). The I-Chart procedure has three phases: the Planning Phase, the Interacting Phase, and the Integrating and Evaluating Phase.

The Planning Phase is what the teacher does to prepare for the students, and includes preparing the I-Chart for the topic. The chart, a very large sheet of bulletin board paper, is marked off in columns and rows and displayed on the wall for the whole class to view. In the example, Columbus was the topic. Guiding questions, like, "What did the explorer find?", were in the row at the top of the chart. According to the I-Chart procedure, the sources in literature are in a column along the left side. There is a row for recording students' responses to each question before

searching the literature. There is also a row for writing questions raised by the students, before and after the readings.

In the Interacting Phase, students read the sources, discuss the answers found, and record the information on the I-Chart. The final phase has the students summarize statements for each question, record on the chart, and compare to what they thought before the study began. Unanswered questions could lead to more research.

The result of using an I-Chart to study Columbus prepared the students to discuss the issues. They were gaining experience in how to be critical thinkers. Students discovered how to examine more than one source to find answers. Additionally, they were not as quick to accept the information found in a single source. Hoffman explained that once the students learned the basic framework of the I-Chart, the teacher gradually turned over the responsibilities for the inquiry process to the students. Students could decide what the topic would be, formulate the questions, and find the literature. The involvement strategies encouraged the students to take ownership of the learning.

Link (1985) described the Instrumental Enrichment Program (IE) designed by Reuven Feuerstein in 1980. The program, aimed at adolescents, included a series of problem solving tasks, covering 14 areas of cognitive development. The goal of IE was to change passive, dependent thinkers into self-motivated, independent thinkers.

The procedure for using IE was set up to cover a three year span with set skills for each year. It was not to be used instead of present curriculum but to enhance what was already in place. It was designed to be used as a supplement to help teenage students get the most out of learning situations. This is why the tasks were termed instruments rather than lessons. The instruments were a means for changing the way students think. The teachers used material from them to present two to five lessons for a single period each week. Comparison was one of the instruments. Practice in making comparisons promoted the ability to discriminate by attribute.

Training teachers to use IE requires a minimum of 45 hours of inservice for each year of the three year program, with on-the-job exercises done in the classroom. That much training requires a very big

commitment to the IE program. As Link (1991:9) said, "There is no curriculum development without staff development."

A study was done with hearing-impaired students. Link (1985) reported on a two year pilot study that used the IE with hearing-impaired teenagers at the Model Secondary School for the Deaf in Washington, D.C. The study involved experimental and control groups. Some noteworthy recommendations came from this research. Systematic teaching of thinking skills was valuable, measured results were produced when applied to hearing-impaired adolescents, and teacher training was essential. One other point was noted. The enthusiasm of the teachers involved led to other instructors at the school using the program.

Link (1985) quoted a report from school District 54 in Schaumburg, Illinois, dated August, 1985. A two year, consecutive implementation of the IE program with 428 students in 5th and 6th grade was evaluated. The procedure had some 5th grade teachers in almost every school in the district trained in using the IE program. The program was implemented for two years and followed the same students from 5th grade on through 6th. The targeted students were given pre and post tests using

the Cognitive Abilities Test, to evaluate the impact of the program.

The result was a measurably significant increase in test scores. The data was compared to a previous study done in the same district using the IE program with junior high students. In both cases, the students' measurable thinking skills increased. There is one consideration not explained in this school district report. Did the 6th grade teachers also receive the training? Did the 5th grade teachers move along up with their students and teach them at the 6th grade level?

In a meta-analysis, researchers, J. Brown and L. Brown (1987) examined experiments conducted in three independent studies with hearing-impaired students to determine whether class time spent to teach students to use a thinking strategy was worthwhile. The studies were conducted by Gormley (1982), Kelly and Tomlinson-Keasey (1976), and Tomblin (1977). In all three studies, statistically significant results revealed improvement in students' learning following direct instruction in a thinking strategy.

In an interview with Kissel (1992), Speech and Language Clinician, the High/Scope Program was discussed. Kissel (1992) has used this program to

encourage language development with language-delayed, hearing-impaired students aged five to twelve. The procedure had students make individual plans for what they wanted to do. The room was filled with possible activities for selection. The important part was that the student decided and made a plan on paper. Some students drew pictures of their plan, others wrote the words. Next, the children carried out their plans. Students were allowed to change activities, but first, they had to put the changes on paper. Finally, the group of students came back to the table to recall what they had done. The teacher encouraged students to tell all they could and thereby promoted language that was important to them.

For a Master's dissertation, Kissel's (1988) procedure included the use of High/Scope plus video taping to find out if taping one group of students' activities, and then allowing them to view this during the recall sessions, could improve their language. One reason for using High/Scope was because it is based upon Piaget's theories of child development. The result of the study found measurable language growth in both groups with the greatest improvement in the group with video taping. The High/Scope strategy of having young

students make plans for activities they want to do led the practicum writer to the idea of using flow charts to help kindergarteners set goals and make plans to attain them. The strategy was found in the Kindergarten Sexuality Education component of the county's Comprehensive Health Education Curriculum (1991).

In this procedure, the teacher uses five 12 x 18 inch sheets of paper to create a big flow chart with a large circle at the end. A class goal is established, such as getting ready for lunch. The circle is the goal and getting ready for lunch is printed there. The rectangles are the things that must be done to reach the goal. Students decide what steps have to be taken to reach their goal, and the teacher prints one step on each rectangle. Finally, if the resulting flow chart is placed on the floor, students can walk, step by step, through their plan and say each step as they walk. Then students follow the plan.

To share this learning with the parents, there is a reproducible letter explaining the lesson. It tells how the student is learning to set goals and follow them. It offers an example parents can use at home, with an illustration of the flow chart and the steps a child would follow to have a clean room. It invites the

parent to think of other ways to reinforce the goal setting skill at home.

A curriculum called AIMS (1987) was published by Fresno Pacific College. AIMS is an acronym for Activities to Integrate Mathematics and Science. Originally, the program was funded by the National Science Foundation to train teachers in the integration of math and science. The program grew to include instructional materials designed to give students direct involvement. Activities are available for students from K-9.

One of the AIMS activities has young students using crackers of different shapes to estimate, classify, count, and graph. In another activity, students start with a bag of Gummy Bears, use the characteristic of color to sort them, count each group, and determine the total number. The children keep record sheets on all the work. The actual pieces of candy are placed on a graph, and then, a representational graph is made.

Teachers can find ways to expand the activity, such as having students survey the class members' favorite color Gummy Bear and make a graph to show the results. An extension of the activity would be to interview students in other classes to find the favorite color in

each class of the grade level. The important thing to note about Project AIMS activities is students do all the work themselves.

The field testing revealed both teachers and students were enthusiastic about using Project AIMS. Students enjoyed applying the mathematical skills of estimating, measuring, and graphing designed to match their interest level. Elements of science were used to observe and classify, to collect and record data. Best of all, students had fun learning to use various critical thinking skills.

What has been designed in computer software to motivate critical thinking in young students? Mathews (1992), a computer resource specialist, was interviewed. Mathews' (1992) services are available through Florida Diagnostic & Learning Resources System (FDLRS), which provides assistance to exceptional education programs in a five county area. Services include providing instructional technology support through in-service training, a software preview lab, and individual consultations with exceptional education teachers.

Mathews (1992) suggested considering the steps in problem solving and finding out how critical thinking begins. Mathews (1992) advised instead of searching for

software designed specifically to improve critical thinking in young children, it would be better to evaluate programs in terms of how a program can be used to invoke thinking skills. Evaluating in this way should lead to integrating critical thinking skills in the existing software for all subject areas.

A workshop was conducted by McDonald (1988), computer instructional services consultant from the Florida State School for the Deaf and Blind, St. Augustine, Florida. McDonald (1988) demonstrated how to use a computer with whole group lessons. Hooking a T.V. monitor to the computer provided easy viewing for all the students. Another idea was to use a long cable on the keyboard so it could be passed from student to student, giving each an opportunity to participate.

Once the hardware was explained, the software followed. A live demonstration with a group of hearing-impaired students enabled teachers to see how eagerly they participated in the lesson. Not only did the workshop convince teachers of the value of using a computer for group lessons, McDonald (1988) was effective in advising school administrators of the benefits for having computers in the hearing-impaired classrooms to advance language skills.

Teddy Bearrels of Fun is a software program published by DLM Teaching Resources (1987). It was used in McDonald's (1988) presentation to show instructors a motivating tool to encourage language in deaf students. The teacher can begin group lessons by helping young students construct picture stories and generate words to fit. The program offers students many choices to create the scene by allowing students to select a variety of backgrounds, members of the teddy bear family, clothes for dressing the bears, and numerous props. In making decisions, critical thinking is generated.

McDaniels (1985), President of Test Master, Inc., asked the question, "Can computers improve the thinking of students in American Schools?" McDaniels (1985) felt computers can improve student thinking if software is designed to focus on curriculum priorities and to give feedback on progress to the student and teacher. McDaniels (1985) stated teachers need software that provides reports on learning levels of all students and where they are having trouble, software that keeps the teacher informed and in control.

Sprinkel (1992), coordinator of Early Childhood Development in the Orange County School System, stated in a telephone interview, locating research done on

developing thinking skills in young children is difficult. Sprinkel (1992) told of a new resource available called Southeastern Regions Visions in Education (SERVE). Early Childhood Research Quarterly was another source mentioned.

The reference to SERVE brought attention to the increase in technology becoming accessible to educators. A unique multimedia computer system is being set up in the writer's elementary school called Accelerated Station 2000 (AS-2000). From information presented at the workshops conducted by Foster, AS-2000 is the teacher's work station of the future. Using satellite transmission, teachers and students have the means to connect with other classrooms in the nation and to the Edunet support center in Phoenix. Edunet offers help in research to customize lessons, to the needs and interests of students.

An article by Willis (1993) outlined a three-step approach to teaching thinking skills in a direct method. (1) Present the skill. (2) Model the skill. 3) Provide time for practice. The author explained how to foster student thinking by using the vocabulary of thinking with them: "What can you **infer** from this description? What can you **conclude** about this picture?" (Willis,

1993:45)

A panel discussion with people who are crusaders in the field of critical thinking and whose work is in print, was made accessible on audio tape through the Association for the Supervision of Curriculum Development. The panel met to address the evaluation of thinking skills programs. A thought expressed by panel member Shipman (1983) was to use what one has available to get young children thinking; specially designed materials are not necessary. Shipman (1983) stated it is important for children to recognize their own thoughts and how to express them, to know they are thinking beings. Another panel member heard on the audio tape, Bransford (1983) stated, "The trick is knowing what to do with the existing materials," and later, Bransford (1983) said, "Literature is the richest source of problem solving." Hoffman (1992) and Flack (1991) would agree, as revealed in their journal articles. Link (1983), another panel member, believed teacher training is the vital ingredient for critical thinking programs. Link (1983) pulled together the beliefs of the panelists by saying there are different needs and different goals when critical thinking skills are taught, and all require different approaches.

Solution Strategy

After searching the literature for strategies to encourage critical thinking skills in students, the practicum writer selected the most promising solutions to meet the special needs of the target group of young hearing-impaired children. The most suitable plan required combining usable parts from several programs discovered in the research. By careful selection, the writer designed a strategy unique for the problem the students exhibited of not being able to name items needed for a specified task.

The writer examined what has been done at other schools to develop critical thinking skills with hearing-impaired students. A two-year pilot study done with secondary level hearing-impaired students proved systematic teaching of thinking skills produced measured results (Link, 1985). Therefore, using a systematic approach with young students can be expected to produce measurable results. The IE (1980) pilot program used with high school students would not be appropriate for young students, nor would a two-year program fit the time frame for a practicum.

The AIMS project offered a variety of high-interest math and science activities intended to build critical

thinking skills in elementary students. The methods are appealing to students and teachers. Because the program is packaged and sold, it is unacceptable for the solution strategy.

Flack's (1991) plan for developing critical thinking skills with mystery literature was highly motivating for adolescents but not appropriate for young target students at an emergent reading level. The same can be said of Hoffman's (1992) I-Charts. The strategies of both teachers were excellent but not suitable for six and seven-year-old, language-delayed students.

The practicum writer's strategy was designed to utilize technology to teach critical thinking skills by including ideas gathered from McDonald (1988) and Mathews (1992) and using a commercially prepared software package designed for young children by DLM Teaching Resources called Teddy Bearrels of Fun (1987). With guidance from the writer as classroom teacher, students used the computer program to make decisions on appropriate items needed to create certain scenes. For example, the teacher asked students to decide what to take to the beach and create a beach scene. Another feature of the software allowed the students to dress

the teddy bears. Thinking skills were focused on how to dress the bears for different kinds of weather. The teacher asked students to tell three things the bears needed to wear on a cold day. The teacher conducted group lessons with the computer as demonstrated by McDonald (1988). The finished products were printed and given to the students to take home. The target group of young students were highly motivated by the fun they could have with the teddy bear characters. Along with encouraging thinking skills, the classroom teacher facilitated young students in becoming computer literate, a vital skill in today's world.

The writer included a additional strategy using another form of technology, the video camera, as described in the work done by Kissel (1988). In the study, Kissel (1988) found greater measurable language growth in a group of young, hearing-impaired students when classroom activities were taped and reviewed by the group. The writer, as classroom teacher, and the teacher's aide videotaped the students working through the lessons. Just before viewing the tape with the children, the teacher asked them to remember three things they needed to do the activity. Viewing the tapes was effective in reviewing and reinforcing the

learning, plus, copies were made so students could take tapes home to share with parents.

Viewing the tape involved parents. The writer has sent class field trip videos home before, and parents expressed delight in seeing the children in action. One parent was most grateful and told how viewing the tape together encouraged the child to talk about the school experience. The use of technology enabled young hearing-impaired students who lack language skills to tell parents about what happened at school.

Getting parents involved was also part of the writer's plan. In the research, the Comprehensive Health Education Curriculum (1991) explained the importance of sharing what the students were learning in class with their parents. Letters of explanation were sent home, along with suggestions of how parents could reinforce the skills at home. To facilitate parent involvement, the writer prepared a folder for each parent, containing a letter to introduce the project, and to explain what the parent could do to help. During implementation, the teacher gave feedback by writing a short, positive comment in the folder about how the child did on the project that day. The student

carried the folder home each day and returned it the next. In addition, the teacher telephoned the parents every weekend during implementation to ask how the student did on the homework assignment and to answer any questions parents had.

To begin each week, the teacher introduced a new activity-for-the-week. There was a 45-60 minute session each day to practice. At the end of each week of implementation, the students took their how-to books home to share with parents. Weekend homework assignments consisted of the child doing the same activity at home. The parent was asked to answer three yes-no questions on how the child performed. One question was, "Could your child tell you three things needed to do the activity ?"

Another effective strategy the writer used was observed in Kissel's (1992) High/Scope classroom. Each young child was given free choice of what to do, provided the child first drew a plan for the activity. Having students make a plan worked well to help the target group think critically about the sequential steps to take to reach a goal. The problem the practicum addressed of students not being able to tell materials needed to do an activity was improved with the plan-

making strategy. The teacher directed students to include in their plans everything they would need.

To solve the targeted problem, the writer had the students participate in the experience from beginning to end. Instead of being concerned with just a part of the picture, the part about what materials were needed, students were actively involved in seeing the whole picture. They had a goal, decided on materials needed, plus made a plan, carried it out, and enjoyed the product. The students learned skills they can use all through their school years and in the work place, skills for life.

Hogue, the writer's mentor, influenced the decision to make use of a flow chart strategy found in the school's health curriculum. Hogue had observed the writer using the flow chart method in a lesson with students the year before and was enthusiastic about how effectively the strategy encouraged young students to think and plan to reach a goal. Seeing the benefit of using a flow chart strategy, Hogue asked to have the lesson video taped and shared with other teachers.

The writer introduced the target students to the flow chart by making a giant-sized one with poster

board, as suggested in the health curriculum. Students could then lay the flow chart on the floor and physically walk through the plan they made. This whole body approach was an effective way for young students to experience how a flow chart works. In addition, the flow chart served as a familiar visual pattern for the students. With the help of the teacher, they learned to put their plans into a flow chart form.

Later, the teacher showed the students how their flow charts could be made into how-to books they could take home and read to parents. Young children delight in making books. The teacher suggested the following titles for the books made during the first week of implementation, I Can Make a Peanut Butter Sandwich All by Myself, or How to Make a Peanut Butter Sandwich, or What Do You Need to Make a Peanut Butter Sandwich? Each of the children was given the opportunity to decide on the title to use for their own book.

One additional part of the writer's strategy was to take photographs of the students as they worked on planning and carrying out activities. Photos captured those proud moments when students could hold their finished products for all to see. The photos were used as illustrations in the how-to books made by the

student and shared with parents.

Language delay was a big part of the problem for the target students. Hearing-impaired children need concrete learning experiences which will help them build vocabulary and language concepts. To learn a new word, the students may need to hear the word hundreds of times, before it becomes a part of their vocabulary, and can be used spontaneously. The teacher must create valuable, real-life experiences in the classroom. The hearing-impaired child's comprehension of language is never taken for granted, and the teacher must turn every situation into a language-building experience. This continual reinforcement is vital for language-delayed children.

Considering the needs of the students, the writer planned strategies using everyday occurrences, concrete materials, many hands-on lessons, visual aids, parent involvement, and frequent practice sessions. It is essential to use things that are important to children and part of their real world. Food is motivating, and the writer had the students make pudding, jello, and peanut butter sandwiches. Young children learn best through tactile and kinesthetic methods, especially young children whose sense of hearing is impaired.

To teach thinking skills, Willis (1993) outlined an approach based on modeling the skill and providing time to practice. In all the strategies the writer chose, the teacher modeled the skills for the students and gave them many opportunities to practice. The plan was to set the students up for success. Success builds confidence and self-esteem.

The best solution to the problem addressed in the proposal was a combination of several strategies found in the research, that could be adapted for use with six and seven-year-old, language-delayed, hearing-impaired students. All the components, the software package, flow chart, video tape, photographs, books made by students, and hands-on work with concrete materials were selected with consideration for the age and interest level of the target group. All methods in the solution had been successfully used with young hearing-impaired students by other educators.

CHAPTER III

Method

During a twelve-week implementation period, the target group of six and seven-year-old hearing-impaired students learned to make decisions on goals to be achieved, to consider necessary materials, draw a plan, execute the plan, and create a product. The role of the writer was to model and guide the process and provide a variety of highly motivating hands-on experiences, including daily opportunities for students to practice.

The same basic lesson plan format was followed each week. The students worked on a new project every week, for ten weeks. The last two weeks were set aside to conduct a performance assessment with each student in the target group. The writer kept a daily journal as a written record of observations during the implementation. Data was collected at three intervals with a pre-test, a mid-point test, and a post-test.

Sequence of weekly activities

Week #1 = On the first day, the teacher conducted the pretest with students individually. (Appendix A:56.)

With the question of the week, the teacher led the students into activities to develop

critical thinking abilities. The question for the opening week was: "Can you think of three things you need to make a peanut butter sandwich ?"

Week #2 = Can you think of three things you need to make play dough?

Week #3 = Can you think of three things you need to make a book?

Week #4 = Can you think of three things you need to make ants on a log?

Week #5 = Can you think of three things you need to make pudding?

Week #6 = The mid-point evaluation was done on Monday to see if students were moving toward the goal and if changes were necessary. The teacher conducted the test with students individually. Adjustments were to be made in strategies if needed. (Appendix A:56.) The results of the evaluation showed every student's score had gone up from twenty to seventy percent.

Can you think of three things you need to make jello?

Week #7 = Can you think of three things you need when you go to the beach? (Use computer program.)

Week #8 = Can you think of three things you need to wear when it is cold outside? (Use computer program.)

Week #9 = Can you think of three things you need to get ready for bed?

Week #10= Can you think of three things you need to do to get ready for school?

Week #11= Post-test (Appendix A:56.) and performance assessments (Appendix B:59.) were conducted by the teacher with students individually.

Week #12= Continued performance assessment and ended with a celebration.

Lesson plan for the week

The teacher conducted a daily 45-60 minute lesson during the weeks of implementation. To begin the lesson for the week, the teacher displayed a product such as a real peanut butter sandwich and asked students the lead-in question, "Can you think of three things you need to make a peanut butter sandwich?" The teacher asked the students to brainstorm suggestions for materials needed. To keep a written record of the suggestions offered, the teacher printed each suggestion on a sheet of drawing paper, handed the paper to the students and asked them to draw the item. Finally, all the illustrated suggestions were put on the board, so the group could decide on three essential materials they were going to need.

The teacher had the three items on hand and asked the children to pretend they were going to the grocery store to buy them. Their drawing sheets became the shopping list. Keeping in mind that hearing-impaired children need many encounters with new words, they were each asked to name the things on the list, (1) before going to the store, (2) when they asked the storekeeper for the items, and again, (3) when they come back from the store. The teacher looked for every

opportunity during the lesson to have them use the new words.

Next, the teacher's role was to guide the students in making a flow chart plan using the pictures they drew. With a giant flow chart on the floor, the teacher modeled how the students could actually walk step-by-step through their plan and tell what they were going to do for each step. Students then made smaller flow charts of their own.

Depending on the activity that week, the teacher guided the students to work the plan as one group or in cooperative groups of three or four. The students followed the plan, created the product, and enjoyed it.

Next, the teacher demonstrated how the flow chart can become a book, with step one being the first page, step two the second, and so on. Students made books from their flow charts. The flow charts became "how-to books" or "cook books" so the students would be able to refer to the books they made and repeat the activity two or three times during the week. They took their books home at the end of each week to read to parents and do the activity at home. When the students took their books home, a letter was also put in the folder to explain the parent involvement needed. After

the students completed the homework activity, parents were asked to return a brief yes/no questionnaire reporting how the student performed (Appendix C:61).

Each week, the teacher took photos and did video taping of the activities to show students carrying out their plans and proudly holding the finished products. The photos provided a pictorial record of all that was done in twelve weeks. Photos were used to illustrate the books the children made. Copies of video tapes were made so students could take the tapes home to share with interested parents. In class, the videos allowed the teacher to review the activities with students and further develop the language concepts.

To keep materials organized and encourage parent involvement, support, and communication, the teacher provided parent-teacher folders which the students took home and returned daily. In the folder, the teacher wrote positive comments about the student's work, let parents know how they could help, and listed materials they needed to have at home. The students kept the plans and how-to books they made in the folders.

While sharing the set of photos for the first week with the students, the teacher decided to have the

students glue a copy of their photos to the outside of the folders. The purpose was three-fold: the folders were decorated, students were reminded of what they had accomplished each week, and parents loved the photos. The teacher also had a fourth purpose. When the parents picked up the folder to look at the photos, they would also look inside to read the homework assignment.

At the end of the first week of implementation, the writer decided it would be a good idea to make sure everyone got off to a good start and all the parents understood their involvement in the project by phoning them. Each parent was called and asked how it was going and if there were any questions. Due to the positive feelings of the two-way communication, the writer made the decision to continue the weekly calls. With a few of the parents, the writer found it difficult to maintain their support week after week. Those parents needed the phone calls as a reminder. An unexpected outcome of the phone calls happened with a divorced parent who was pleased to regain involvement with the child's school. Due to all the benefits of the personal calls to each parent, the writer has decided to make a point of calling each parent once a month throughout the school year.

Weekly Checklist

The teacher used the following checklist to be sure all elements of the weekly lesson plan had been included.

_____ 1) a sample of the real thing

_____ 2) the question for the week

_____ 3) brainstorm and decide on three essential materials

_____ 4) make a flow chart plan

_____ 5) follow the plan

_____ 6) create the finished product and enjoy it

_____ 7) take photos

_____ 8) do video taping

_____ 9) use the flow chart to make a book

_____ 10) follow the directions in the book to repeat the activity the next two or three days

_____ 11) review and build language with the video

_____ 12) homework assignment and parent questionnaire

Involvement With Others

To conduct the proposed practicum with ten students, the writer included several children from other classrooms during the daily 45-60 minute lessons. The approval of other teachers was required. The schedules of all involved needed to be considered. Parents received a letter of explanation and asked if

they were willing to participate (Appendix D: 63). The principal of the school consented to serve as mentor for the writer of the proposal.

Materials

Parents were asked to donate materials. Some food items were obtained from the school lunchroom manager. The teacher purchased remaining items.

folders, 11	celery
peanut butter	raisins
bread	packages of jello
flour	packages of instant pudding
cooking oil	video tape
salt	10 rolls of film
milk	labels

In celebration of all the learning that resulted during twelve weeks of implementation, the teacher asked the students to apply their newly acquired critical thinking skills in planning a party. The students brainstormed and decided on three items essential for the party, drew a flow chart plan, followed their plan, and enjoyed the end result.

The writer appreciated comments written by some of the parents during the implementation. One parent wrote, "My child's independence has really shined through. It makes me realize just how grown-up she is becoming. D. seems to have a much greater understanding

of logical order. She demonstrates sequence thinking. Thanks again for giving us the opportunity to participate in this project."

Another parent wrote, "This is a good way kids like T. can learn different things. She likes doing the projects at home. Her speech has improved... she can answer back to me."

A third parent told how the child was transfering the learning to new situations with the following note. "I think this is helping improve his memory plus independence in doing things on his own. Last weekend he watched me make a milk shake and must have really enjoyed it, because Friday night he pointed to the blender and I knew what he wanted. I asked him what else we needed and he said 'ice cream' and 'milk' and brought them to me."

The writer enjoyed the comments from the students themselves. "I like it." "Look Mrs. Lins, I did it." "We need to make a plan." Perhaps the best comment of all came at the end of the first week, when one child asked eagerly, "What's next?".

To the writer's great delight, a student with multiple handicaps, hearing and mental impairments, was heard to say, "Don't tell me, let me think about it."

The students were beginning to use the words "thinking" and "think" in other situations during the day. They were realizing that thinking was something they could do and needed to do. They had reached a higher level of metacognition!

CHAPTER IV

Results

To evaluate the success of the plan to develop critical thinking skills in six and seven-year-old, language-delayed, hearing-impaired students, the writer designed a pre-test to measure where students were before implementation began. To determine how the learners were progressing at mid-point, the writer used the same test. To assess how far students had progressed at the end of the program, the same instrument was used as a post-test. Two additional teacher-made evaluation instruments were used. One involved the parent observing the child's performance in the home, on a weekly basis. The other was an individual performance assessment conducted by the writer at the end of the implementation period, to assess the ability of the student to link all the learning together.

During the twelve week implementation period, the target group participated in making decisions on goals to be achieved, determining materials required, designing a plan, carrying out the plan, and coming up with a product. The role of the classroom teacher was

to model and guide the process, and provide a variety of high interest, hands-on activities to reinforce the skills on a daily basis.

For objective #1, nine out of ten students were to increase problem solving ability to think of three materials needed to perform ten specific activities with 70 percent accuracy. To determine the outcome of objective #1, the writer used a teacher-made checklist. Since the target group of students was functioning at pre-reading and emergent reading and writing levels, the writer tested each student individually, by asking the student to tell three items needed for each of ten given activities and recording the responses.

The same test was administered individually at three points during the implementation, 1) as a pre-test to determine where students were before implementation was started, 2) as a mid-point check to see how well students were moving toward the goal and if changes were necessary, and 3) as a post-test to find out whether students achieved the goal (Appendix A:56).

The results of the pre-test revealed five students could not answer any of the questions. The other five students were able to answer a few of them. At the mid-point test nine of the ten students showed definite

improvement, anywhere from twenty to seventy percent. In analyzing the post-test results, seven of the ten students achieved 70 percent accuracy, the criteria for success for objective 1. The writer had desired for nine of the ten students to reach the 70 percent level. Table 1 shows the test results for each student.

Table 1

Test Results for Objective 1

Student	Pre-test	Mid-point	Post-test	Improvement Pre/Post
1	40%	80%	100%	60%
2	10%	50%	100%	90%
3	20%	90%	100%	80%
4	10%	60%	100%	90%
5	0%	50%	30%	30%
6	0%	30%	80%	80%
7	20%	90%	100%	80%
8	0%	60%	100%	100%
9	0%	0%	40%	40%
10	0%	20%	80%	80%

For objective #2, nine out of ten students were to use decision-making and planning skills to select one of ten given products as a goal, demonstrate ability to achieve the goal by requesting materials needed, constructing and following a flow chart plan, and create the product, with 70 percent accuracy as measured by teacher observation and teacher-made assessment of student performance. The teacher-made performance test was given individually at the end of implementation. The classroom teacher conducted the performance assessment during the last two weeks (Appendix B:59).

The results of the individual performance tests surpassed the goal set by the writer in Objective 2. All ten students met the criteria of 70% accuracy. Eight students achieved 100% and two students achieved 90%. Remarkably, the student who scored lowest for Objective 1, demonstrated originality in the performance test for Objective 2.

For objective #3, with the cooperation of the parents, at the end of each week in the implementation plan, all students took the student-made plan for the activity-of-the-week home and demonstrated to the parent the ability to use critical thinking to request

three materials needed to do the activity, follow the plan, and create the product at home, as evaluated by parents in a weekly, teacher-made questionnaire (Appendix C:61). The questionnaire consisted of four items with three requiring a "yes" or "no" response, and the fourth may have required one sentence from the parent. The parent was asked to complete and return a questionnaire each week to evaluate the student's performance of the task at home.

All the parents cooperated in meeting the goal for Objective 3. All of them returned their questionnaires each week.

In reaching the outcome objectives, the writer hoped to see improvement in the students' attitudes. By learning to think and do things for themselves, the writer believed the students would grow in self-esteem and confidence. Not only did the writer observe improved student attitudes, the parents expressed their positive feelings as well.

How did the students' confidence and feeling of self-reliance develop? It happened one day at a time, as the following comment points out. One parent was proud to report that after doing the weekly homework, the child had cleaned up everything by himself. The

child's proud feeling about being able to do these things independently helped to build confidence and self-esteem. The parent was instrumental in the process by standing back and allowing the child to handle the task. No doubt the clean up could have been done much more quickly had the parent stepped in and taken over, but the child would have been robbed of a valuable experience.

CHAPTER V

Recommendations

Effective methods to develop students' critical thinking skills are continuously being explored. The writer intends to share the results of the practicum created to promote thinking skills in young hearing-impaired students with fellow educators at the local school level. Based on the positive evaluation, the writer will continue to use the program in the classroom each year with new students and parents.

On a state level, the writer will be able to share the program with teachers of hearing-impaired students during the annual convention of the state organization of educators of the hearing impaired. In addition to the convention, the state organization publishes a newsletter and the writer's work can be included in the letter, which is sent to every member in the state. The writer desires to share the program with members of another state-level organization, dedicated to promoting oral education for the hearing-impaired, founded by interested parents in the state. The writer will request the opportunity to share information at the group's annual convention and in the newsletter.

On a national level, the writer plans to submit the practicum proposal for publication in The Volta Review, the monthly periodical published by the Alexander Graham Bell Association for the Deaf, the national organization for "... all who are interested in improving educational, professional, and vocational opportunities for hearing-impaired people" (Alexander Graham Bell Association for the Deaf, 1987;321). Publication in the journal will enable the writer's work to reach teachers in the field of deaf education throughout the United States. Other teachers concerned with encouraging critical thinking skills in hearing-impaired children will be able to use the program as designed in the practicum and find ways to adapt it for use with their students.

In addition to publishing studies done in the field of deaf education, the A.G.Bell Association calls for papers from prospective presenters to share with members at the biennial conventions held at major cities in the United States. If the practicum is accepted for presentation, the writer will be able to conduct a short course on developing critical thinking skills in young hearing-impaired children and share the practice with association members from every part of the

nation. The writer's video tapes of the practicum implementation will be useful in presentations to groups. The desire of the writer is for other educators to adopt the program and to be motivated to find a variety of ways to advance critical thinking ability in young hearing-impaired students.

Using all the contacts with educators of the deaf, the writer could establish a network of teachers across the United States to discuss and compare strategies used to teach thinking skills to students. Electronic mail could link the network. Edunet, a state-of-the-art, nation-wide, multi-media, education computer system is currently in use at the site at the writer's school. The writer could use the Edunet system to network with other teachers in the United States and other countries. In sharing ideas, teachers will be encouraged to explore new ways to help students grow in critical thinking abilities.

The importance of parental involvement must be acknowledged. At the end of implementation, the writer was convinced the support of parents had a positive impact on the outcome of the practicum. Encouraging parents to participate required additional effort. The time was well invested. As an added bonus, the two-way

dialogue between teacher and parent that began with the practicum grew to include discussions about other aspects of the students' development. Clearly, the students benefitted in numerous ways from the practicum.

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Appendix A

Teacher-Made Checklist

Appendix A

Teacher-Made Checklist

Student = _____

Date =	_____	_____	_____
Score =	_____	_____	_____
	(Pre)	(Mid)	(Post)

Outcome Objective 1: Over a period of three months, 90 percent of the students will increase problem-solving ability to think of three materials needed to perform ten specific activities by 70 percent as measured by teacher-made checklist.

Directions: (A) The teacher will test students individually. The student will be asked to tell three things needed for each activity. To score one point, the student must name three appropriate items essential to do the activity.

(B) To begin, the teacher will give student the following example: tell me three things you would need to take a bath. Pause for student to respond. Discuss acceptable answers, water, soap, towel, wash cloth.

Points			Activity
Pre*	M*	Post*	
___	___	___	1. Tell me three things you need to make a peanut butter sandwich. (Answer = bread, peanut butter, and knife or spoon.)
___	___	___	2. Tell me three things you need to make a book. (Paper, pictures, words, and other acceptable responses.)
___	___	___	3. Tell me three things you need to make play dough. (Flour, water, salt, oil, coloring)

Continued >

___ ___ ___ 4. Tell me three things you need to make ants on a log. (Celery, peanut butter, and raisins)

___ ___ ___ 5. Tell me three things you need when you go to the beach. (Swimsuit, towel, and a toy such as a pail, a shovel, a beach ball, or other acceptable responses)

___ ___ ___ 6. Tell me three things you need to make jello. (Package of jello, water, and bowl)

___ ___ ___ 7. Tell me three things you need to make pudding. (Package of pudding, milk, and bowl)

___ ___ ___ 8. Tell me three things you need to wear when it's cold outside. (Long pants, jacket, sweater, mittens or gloves, cap or hat)

___ ___ ___ 9. Tell me three things you need to do to get ready for bed at night. (Put on pajamas, brush teeth, go to the bathroom, and other acceptable responses.)

___ ___ ___ 10. Tell me three things you need to do to get ready for school in the morning. (Get dressed, eat breakfast, brush teeth, and other acceptable responses.)

_____ = Total points x 10 for pre-test = _____% = Final score pre-test

_____ = Total points x 10 for mid-point = _____% = Final score mid-point

_____ = Total points x 10 for post-test = _____% = Final score post-test

* Pre = pre-test M = mid-point test Post = post-test

Appendix B

Teacher-Made Performance Assessment

Appendix B

Teacher-Made Performance Assessment

Student = _____

Date = _____

Score = _____ x 10 = _____%

Outcome Objective 2: Within the designated twelve-week period, nine out of ten students will use decision-making and planning skills to select one of ten given products as a goal and demonstrate the ability to achieve the goal by telling materials needed, constructing and following a flow chart plan to create a product, with 70 percent accuracy as measured by teacher observation and teacher-made assessment of performance.

	POINTS
Directions for Part 1: Teacher will show student photo chart of ten activities conducted during the implementation period and ask student to decide on one to do now. Score one point.	_____
Directions for Part 2: Teacher will ask student to tell three things needed for the activity, and teacher will hand student the items. Score one point.	_____
Directions for Part 3: Teacher will give student a blank flow chart []--[]--[]--(), and ask student to draw a plan for the activity. Score three points.	_____
Directions for Part 4: Teacher will ask student to follow the plan. Score three points.	_____
Directions for Part 5: Teacher will ask student to display the finished product. Score 2 points.	_____
Total points =	_____

Appendix C

Teacher-Made Parent Questionnaire

Appendix C

Teacher-Made Parent Questionnaire For Week 1

Parent = _____

Student = _____

Date = _____

Dear Parent,

Your child has been working in class to improve thinking skills and is now proud and ready to show you what was learned during the past week. Ask your child to show you the plan book made in class and please read the book together. Then say to your child, **"Tell me three things you need to make a peanut butter sandwich."** Give your child the things he names. Then say, **"Show me how you do it."** Parent stands by and watches and encourages child to do it all without help.

Please answer the following questions. Circle **YES** or **NO**.

YES NO 1. Could your child name three things needed to make a peanut butter sandwich ? Acceptable items = peanut butter, bread, and knife or spoon.

YES NO 2. After you gave your child the things he named, did he follow the plan in his book ?

YES NO 3. Did your child achieve the goal and make a peanut butter sandwich all by himself ?

4. If your child needed help from you, explain how you helped. For example, you may have had to open the jar lid, if it was on too tightly.

_____

_____

_____

Appendix D

Letter to Parents

Appendix D

Letter to Parents

To: Parent

From: Joyce Lins

Date: March 8, 1993

I'm working on my master's degree and part of the requirement is to conduct a 12 week project with the students to improve a problem I have identified. My project grew out of something I have observed through the years as I do end-of-the-year language testing with the students. All the students have a problem when I ask them to tell me three things they need:

___to take a bath
___to have a party
___to go fishing
___to make dinner

I plan to work with the same 10 students every day for 45 to 60 minutes for twelve weeks to help them develop problem solving and thinking skills to be able to name 3 things needed to do ten specific activities. I will need your cooperation to help make this a successful project for your child. I will ask you to do a 15 minute homework activity with your child for the next 10 weekends. The activities will be fun. **LOOK FOR THE HOMEWORK DIRECTIONS IN THIS NOTEBOOK EVERY FRIDAY.** Please check this pink notebook everyday, and I will keep you informed on how your child is doing in class. If you can send in a video tape clearly labeled with your child's name, I hope to make copies of the class work on this project and your child can bring it home to share with you.

PARENT, PLEASE SIGN TO LET ME KNOW YOU'VE READ THIS AND ARE WILLING TO HELP,

_____